# PeriStudio 2.20 Release Notes

## Avaya Business Communications Manager

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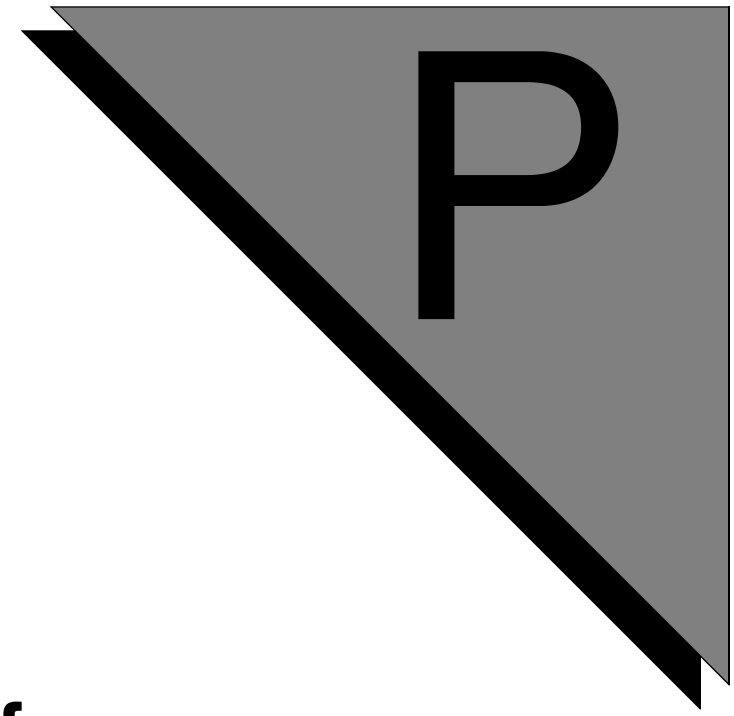


# Preface

**This chapter covers:**

1. **Scope**
2. **Intended Audience**
3. **How To Use This Manual**
4. **Organization of This Manual**
5. **Conventions Used in This Manual**
6. **Trademark Conventions**

## Scope

This document contains the following information relating to PeriStudio Release 2.20:

- Procedures for installing and/or upgrading to the new version of PeriStudio on a Avaya Media Processing Server (MPS) Series, standalone workstation, or PC. Separate chapters are provided for Solaris and Windows 2000 based systems.
- Description of new features and functionality in PeriStudio.

## Intended Audience

This document is directed toward personnel who are responsible for upgrading or installing PeriStudio on an MPS Series, standalone workstation, or PC. For new PeriStudio users, it is assumed that you are familiar with the platform on which the software will be installed. Chapters covering new features and corrected defects are provided for informational purposes for experienced PeriStudio users.

## How To Use This Manual

This manual uses many standard terms relating to computer system and software application functions. However, it contains some terminology that can only be explained in the context of the MPS Series. Refer to the *Glossary of MPS Terminology* for definitions of MPS Series specific terms.

Initially, you should read this manual at least once, from start to finish. Later, you can use the Table of Contents to locate topics of interest for reference and review.

If you are reading this document online, use the cross-reference links (shown in blue) to quickly locate related topics. <LEFT> click once with your mouse while positioned with your cursor over the cross-reference link. Click on any point in a Table of Contents entry to move to that topic. Click on the page number of any Index entry to access that topic page.

To familiarize yourself with various specialized textual references within the manual, see ***Conventions Used in This Manual***

PERImps **perirev**

## Organization of This Manual

*Chapter 1 - Installing PeriStudio on Solaris*

*Chapter 2 - Installing PeriStudio on Windows 2000*

*Chapter 3 - Release Notes*

## Conventions Used in This Manual

**Conventions Used in This Manual (Sheet 1 of 2)**

| Notation | Description |
|---|---|
| Normal text | Normal text font is used for most of the document. |
| *important term* | The Italics font is used to introduce new terms, to highlight meaningful words or phrases, or to distinguish specific terms from nearby text. |
| **`system command`** | This font indicates a system command and/or its arguments. Such keywords are to be entered exactly as shown (i.e., users are not to fill in their own values). |
| **`command`**, **`condition`** and **`alarm`** | Command, Condition and Alarm references appear on the screen in magenta text and reference the *Command Reference Manual*, the *PeriProducer User's Guide*, or the *Alarm Reference Manual*, respectively. Refer to these documents for detailed information about **`Commands`**, **`Conditions`**, and **`Alarms`**. |
| `file name / directory` | This font is used for highlighting the names of disk directories, files, and extensions for file names. It is also used to show displays on text-based screens (e.g., to show the contents of a file.) |
| on-screen field | This font is used for field labels, on-screen menu buttons, and action buttons. |
| <KEY NAME> | A term that appears within angled brackets denotes a terminal keyboard key, a telephone keypad button, or a system mouse button. |
| *Book Reference* | This font indicates the names of other publications referenced within the document. |

| | |
|---|---|
| cross reference | A cross reference is typically shown on the screen in blue. Click on the cross reference to access the referenced location. A cross reference that refers to a section name accesses the first page of that section. |
| | The Note icon identifies notes, important facts, and other keys to understanding. |
| | The Caution icon identifies procedures or events that require special attention. The icon indicates a warning that serious problems may arise if the stated instructions are improperly followed. |
| | The flying Window icon identifies procedures or events that apply to the Windows 2000 operating system only.[a] |
| | The Solaris icon identifies procedures or events that apply to the Solaris operating system only.[b] |

a. Windows 2000 and the flying Window logo are either trademarks or registered trademarks of the Microsoft Corporation.
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## Solaris and Windows 2000 Conventions

This manual depicts examples (command line syntax, configuration files, and screen shots) in Solaris format. In certain instances Windows 2000 specific commands, procedures, or screen shots are shown where required. The following table lists examples of general operating system conventions to keep in mind when using this manual with either the Solaris or Windows 2000 operating system.

| | | **Windows 2000** |
|---|---|---|
| Environment | `$MPSHOME` | `%MPSHOME%` |
| Paths | `$MPSHOME/common/etc` | `%MPSHOME%\common\etc` |
| Command | **`<command> &`** | **`start /b <command>`** |

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# Installing PeriStudio on a Solaris Platform

1. Pre-Installation Requirements and Considerations
2. Installation Procedures

## Pre-Installation Requirements and Considerations

PeriStudio may be installed and operated on an Avaya Media Processing Server (MPS) Series, PeriView workstation, or standalone vocabulary development workstation. PeriStudio 2.20 is to be installed to patch level `pstu2.20.10`. This release of PeriStudio is compatible with MPS Series Release 2.1 (or later) software. For more information, refer to .

Before starting the installation procedure:

- Preview the requirements and procedures in this chapter before proceeding.
- Run a full system backup (if one has not recently been done).
- Terminate and unassign all applications.
  Using the Application Management tool in PeriView, select the lines on the MPS(s) then select Terminate and Unassign. For details, see the *PeriView Reference Manual* or the *MPS System Operator's Guide*.

### Software Prerequisites

If you are installing PeriStudio on an MPS Series or PeriView workstation, the following packages must first be installed in the following order, and to the patch level stated:

1. **PERIfw** - System library that enables platform-independent process execution. Minimum patch level is fw1.39.
2. **PERIglobl** - Global libraries required for all packages. Minimum patch is `globl2.2.0.34`.
3. **PERIdoc** - Documentation services. Recommended, but not required.
4. **PERImps** - Software required on an MPS Series or PeriView workstation.
5. **PERIplic** - License server required for all licensed packages. Minimum patch level is `plic1.2.0.3`.

If you are installing PeriStudio on a standalone vocabulary development platform, the prerequisites above apply, except for PERImps.

Determine if the required packages are installed by entering the **`perirev`** command in a VSH Tool. If all the packages are not installed to the required patch levels, install them in the order above. Install all patches in numerical order for each package before installing the next package. Refer to
before installing PeriStudio.

## Pre-Installation Considerations

The PeriStudio installation package for Solaris, `PERIpstu`, is provided on a $^1/_4$" or 4mm tape. The package is contained in a `.tar` file, either alone, or along with other Avaya software release packages, such as a complete version release. If the `.tar` file has not already been extracted, extract the installation package(s) to a temporary staging directory by entering

```
mkdir <pstu_temp>
cd <pstu_temp>
tar -xvf /dev/rmt/0
```

where <*pstu_temp*> is the temporary directory in which you want the installation package(s) loaded. A separate subdirectory will be created for each software package in the `.tar` file. The PeriStudio package directory will be `pstuX.XX-yyddd/PERIpstu`.

### Disk Space Requirements

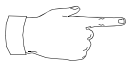
The minimum disk space requirements for the PeriStudio installation are:

- Temp files: 14 Mb
- Installed package: 7 Mb
- Documentation: 2.2 Mb

The capacity of the system disk must be sufficient to contain all speech files that will be created, and any files required for other processes. It is recommended that the available disk space be at least two times the total amount of recorded speech that will be held in multimedia files. For recorded vocabularies, digital MMFs (encoded in u-Law or A-Law) require approximately 0.5 Mb/minute (8 kb/second). Analog vocabularies (encoded in ADPCM) require approximately 0.25 Mb/minute (4 kb/second).

### Audio Interfaces

In order for PeriStudio to access various audio input and output devices, a hardware interface is required to connect these devices to the MPS Series or workstation. Recommended devices include a microphone, tape deck, mixer, and/or telephones, depending on the platform. Detailed audio interface installation procedures are provided in the *PeriStudio User's Guide*.



**For more information on system requirements for PeriStudio, refer to the *PeriStudio User's Guide*.**

## Installation Procedures

The distribution cartridge tape contains all PeriStudio files. This includes the main program file, auxiliary program files, utility programs, a license file, and sample data files. All these files must be placed into the same directory, which is identified to the system software by means of the environment variable `$PERISTUDIOHOME`.

### Installing the PeriStudio Package (PERIpstu)

Enter the **pkgadd** command. Specify the temporary directory where the package resides. Use the following syntax as super user:

**pkgadd -d** <*pstu_temp*>

Where <*pstu_temp*> is the directory you used to hold the contents of the release tape.

The packages available in <*pstu_temp*> are presented as options. Enter the number of the PERIpstu package at the prompt.

```
# pkgadd -d /opt/home/peri/pstu_temp

The following packages are available:
  1  PERIpstu     Distribution of pstu
                  (sparc) pstu2.20

Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]: 1
```

The system confirms your action and provides license information:

```
Processing package instance <PERIpstu> from </opt/home/peri/pstu_temp>

Distribution of pstu
(sparc) pstu2.20

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```

The system prompts you to confirm the base directory. Press <RETURN> to accept the default (recommended). The base directory will be confirmed.

```
Specify the base directory under which pstu will be installed.


PERIpstu base install directory [/opt/vps]:
Using </opt/vps> as the package base directory.
```

The install scripts begin preparing the package(s) for installation. A final prompt is displayed to confirm the installation. Enter `y` to continue.

```
## Processing package information.
## Processing system information.
   1 package pathname is already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed
with super-user
permission during the process of installing this
package.

Do you want to continue with the installation of
<PERIpstu> [y,n,?] y
```

The progress of the installation is displayed as the installation proceeds to completion, at which time the option to install other packages is repeated. Enter `q` to quit.

```
Installing Distribution of pstu as <PERIpstu>

## Installing part 1 of 1.
/opt/vps/packages/pstu2.20/bin/batchplay
/opt/vps/packages/pstu2.20/bin/cmrExport
/opt/vps/packages/pstu2.20/bin/defmerge
/opt/vps/packages/pstu2.20/bin/mmfExport
/opt/vps/packages/pstu2.20/bin/peristudio
/opt/vps/packages/pstu2.20/bin/psserver
/opt/vps/packages/pstu2.20/bin/pstu.csh
/opt/vps/packages/pstu2.20/bin/sample.mmd
/opt/vps/packages/pstu2.20/bin/sample.mmi
/opt/vps/packages/pstu2.20/bin/testtone.def1
/opt/vps/packages/pstu2.20/bin/wav2mmf
/opt/vps/packages/pstu2.20/lib/libMesaGL.so
/opt/vps/packages/pstu2.20/lib/libMesaGLU.so
/opt/vps/packages/pstu2.20/lib/libMesaGLw.so
/opt/vps/packages/pstu2.20/lib/libpstudiocl.so
/opt/vps/packages/pstu2.20/lib/libtools.so
[ verifying class <pstu> ]
## Executing postinstall script.
Creating /opt/vps/PERIpstu link ----> /opt/vps/packages/pstu2.20

Installation of <PERIpstu> was successful.

The following packages are available:
  1  PERIpstu     Distribution of pstu
                  (sparc) pstu2.20

Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]: q
#
```

Using the **`peripatch`** utility, install PeriStudio patches `pstu2.20.1` through `pstu2.20.10`. Refer to *Installing MPS Software on the Solaris Platform*.

## Installing the PeriStudio License

Each time PeriStudio is started, it requires a valid license key from the PeriLicense server. PeriLicense should already be installed and running locally, or on a remote node on the network. If you are unsure of the location of the license server, enter the following command:

```
echo $LSHOST
```

$LSHOST is the environment variable for the license server host. If the variable is undefined, you will need to determine if and where PeriLicense is installed. If you cannot confirm that PeriLicense is available, install it in accordance with *Installing MPS Software on the Solaris Platform*. If $LSHOST is not defined but you know the that PeriLicense is installed locally or on another node, add the $LSHOST variable and define it as the host name. To do this, add the following line to your `/home/<user>/.cshrc` file or to the `/etc/vpsrc.csh` file, and source the file:

```
setenv LSHOST <host_name>
```

If $LSHOST is defined, you will need to add the license key to the `plservrc` license file on the license server host. You should have received a paper copy of the PeriStudio license key with the package software. The location of the `plservrc` license file is typically `$VPSHOME/PERIplic/etc`, however the file may be in another location and you will need to use the **`find`** command to locate it. For more information on the PeriLicense server, installing the PERIplic package, and stopping/starting the PeriLicense server, refer to *Installing MPS Software on the Solaris Platform*.

## Backing Up the Sample Files

Along with the PeriStudio program files, sample audio files were installed into the `$PERISTUDIOHOME` directory. These three files (`sample.mmi`, `sample.mmd`, and `testtone.def1`) are used normalization references, and for exercises in the *PeriStudio User's Guide*. These files should be backed up for the purpose of safekeeping.

**The following command sequence backs up the `sample` MMF files. This procedure need be done only once, when PeriStudio is initially installed.**

**To back up the sample files:**

1. In the vsh or command tool, enter the following command:
   **`cd $PERISTUDIOHOME`**.
   This sets the present working directory to the one used to store the PeriStudio files.
2. Create a subdirectory called `backups`:
   **`mkdir backups`**
3. Copy the files to that subdirectory:
   ```
   cp sample.mmi backups
   cp sample.mmd backups
   cp testtone.def1 backups
   ```
4. Make the files *read-only*:
   ```
   cd backups
   chmod 444 sample.mmi sample.mmd testtone.def1
   ```

To restore the sample files from the backups to the `$PERISTUDIOHOME` directory, perform the following procedure. This may be done as needed.

**To restore the sample MMF files from the backups:**

1. Close the `sample` file if it is loaded.
2. Exit from PeriStudio.
3. Change to the PeriStudio directory:
   **`cd $PERISTUDIOHOME`**
4. Copy the files to the current directory:
   ```
   cp backups/sample.mmi .
   cp backups/sample.mmd .
   ```
5. Restart PeriStudio.
6. Open the `sample.mmi` file again to verify restoration.

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2

# Installing PeriStudio on a Windows 2000 Platform

**This chapter covers:**

1. **Pre-Installation Requirements and Considerations**
2. **Installation Procedures**

## Pre-Installation Requirements and Considerations

PeriStudio may be installed and operated on a Avaya Media Processing Server (MPS) Series, PeriView workstation, or standalone vocabulary development workstation. PeriStudio 2.20 is to be installed to patch level `pstu2.20.10`. This release of PeriStudio is compatible with MPS Series Release 2.1 (or later) software. For more information, refer to the *Installing MPS Software on the Windows Platform*.

Before starting the installation procedure:

- Preview the requirements and procedures in this chapter before proceeding.
- Run a full system backup (if one has not recently been done).
- Terminate and unassign all applications.
  Using the Application Management tool in PeriView, select the lines on the MPS(s) then select Terminate and Unassign. For details, see the *PeriView Reference Manual* or the *MPS System Operator's Guide*.

### Software Prerequisites

If you are installing PeriStudio on an MPS Series or PeriView workstation, the following packages must first be installed in the following order, and to the patch level stated:

1. **PERIfw** - System library that enables platform-independent process execution. Minimum patch level is fw1.39.
2. **PERIglobl** - Global libraries required for all packages. Minimum patch level is `globl2.2.0.34`.
3. **PERIdoc** - Documentation services. Recommended, but not required.
4. **PERImps** - Software required on an MPS Series or PeriView workstation.
5. **PERIplic** - License server required for all licensed packages. Minimum patch level is `plic1.2.0.3`.

If you are installing PeriStudio on a standalone vocabulary development platform or PC, the prerequisites above apply, except for PERImps.

Ensure the required packages are installed by checking the Add/Remove Programs list in the Control Panel. If the required packages are not installed, install them in accordance with *Installing MPS Software on the Windows Platform* before installing PeriStudio.

**You can obtain more information about the Avaya packages currently installed, and their patch levels, by entering the `perirev` command in a Command Prompt window. However, if there is no PERImps package currently installed, the `perirev` command will not be available.**

## Pre-Installation Considerations

The following considerations apply to the installation of all Avaya software, including PeriStudio, on a Windows 2000 platform:

- You must have administrative privileges to install any of the Avaya packages so that services and environment settings can be updated.
- Terminate all active Avaya applications and stop all existing Avaya services prior to installing new packages. For further information on performing these procedures, refer to the *MPS System Operator's Guide*.
- Read the `README_1st.htm` file located on the installation disc *prior to* performing any actual installations. This file contains important information concerning installation and use of Avaya packages.
- After installing PERIglobl, the system must be rebooted when prompted by the install script. Refer to *Installing MPS Software on the Windows Platform* for additional important information regarding this procedure.
- Since all Avaya products require PERIglobl, do not remove it unless Avaya products are no longer to be used on that system.

### Disk Space Requirements

The minimum disk space requirements for the PeriStudio installation are:

- Installed package: 6 Mb
- Documentation: 2.2 Mb (from PeriDoc CD)

### Audio Interfaces

In order for PeriStudio to access various audio input and output devices, a hardware interface is required to connect these devices to the MPS Series or workstation. Recommended devices include a microphone, tape deck, mixer, and/or telephones, depending on the platform. Detailed audio interface installation procedures are provided in the *PeriStudio User's Guide*.

**For more information on system requirements for PeriStudio, refer to the *PeriStudio User's Guide*.**

## Customer Workstation Requirements

The following information details the required parameters for running Avaya software on a Windows 2000 platform supplied by you. A customer supplied workstation is explicitly defined by Avaya. It consists of customer supplied equipment that meets or exceeds the hardware and software requirements for operating Avaya supplied software. Failure to meet these requisite conditions may lead to incorrect operation of your Avaya packages.

**You must set up your node as a PeriView workstation rather than an MPS Series during installation of PERIglobl. (Refer to *Installing MPS Software on the Windows Platform*.)**

### System Base Requirements

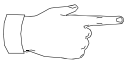
- Windows 2000 with TCP/IP protocol installed
- Pentium 266 Mhz (or higher) processor
- 64 MB of RAM (96 MB recommended)
- 4 GB (minimum) hard disk drive (IDE or SCSI)
- CD ROM
- 33.6 Kbps modem and pcANYWHERE (version 8.02 or later) (optional; required for remote diagnostics)
- Screen resolution set to 1024 x 768 pixels (minimum)

*Required for MPS Series systems only:*

- Adaptec SCSI controller model 2920
- PCI 10 MB Ethernet card (dedicated for CPS connectivity)

*For development workstations only:*

- 16 bit (or more) Sound Blaster sound card (optional)



PeriStudio requires the use of other audio interface components (such as speakers, microphones, etc.) for full functionality. For further information see the *PeriStudio User's Guide*.

## Installation Procedures

If you are installing multiple Avaya packages, it is recommended you use PeriInstaller. (Refer to the *Installing MPS Software on the Windows Platform*.) Otherwise, PeriStudio is typically installed using the InstallShield Wizard.

### Installing the PeriStudio Package (PERIpstu)

Terminate all applications and launch the InstallShield Wizard using one of the following methods:

- From the task bar, select Start—Run. In the Run pop-up window, enter

  **`e:\PERIpstu\setup`**

  Substitute the letter of the CD-ROM drive for **`e`** in the example.

- Use Add/Remove Programs in the Control Panel:
  - **a.** Select Start—Settings—Control Panel.
  - **b.** Double-click on the Add/Remove Programs icon.
  - **c.** Click on the Install button.
  - **d.** Click Next.
  - **e.** Click Browse, and use the file chooser to navigate to **`e:\PERIpstu\setup`**. (Substitute the letter of the CD-ROM drive for **`e`** in the example.)
- Using My Computer or Windows Explorer, navigate to and double click on **`e:\PERIpstu\setup`**. (Substitute the letter of the CD-ROM drive for **`e`** in the example.)

Follow the instructions of the InstallShield Wizard to completion. To finish the installation, you may be prompted to restart the computer. You are given the option not to restart until later, however, *it is strongly recommended that you restart immediately after the installation*.

Once the PERIpstu package is installed, install patches `pstu2.20.1` through `pstu2.20.10` in numerical order. To install a patch bundle, double click on the self extracting executable. For more information, refer to the *Installing Periphonics Software on an NT Platform*.

## Installing the PeriStudio License

Each time PeriStudio is started, it requires a valid license key from the PeriLicense server. PeriLicense should already be installed and running locally, or on a remote node on the network. If you are not sure of the location of the license server, enter the following command:

```
set LSHOST
```

%LSHOST% is the environment variable for the license server host. If the variable is undefined, you will need to determine if and where PeriLicense is installed. If you cannot confirm that PeriLicense is available, install it in accordance with *Installing MPS Software on the Windows Platform*. If %LSHOST% is not defined but you know the that PeriLicense is installed locally or on another node, add the %LSHOST% variable and define it as the host name.

To add the environment variable:

1. <RIGHT> click on My Computer, select Properties.
2. In System Properties, select the Environment tab.
3. In the Variable field, enter `LSHOST`.
4. In the Value field, enter the host name of the node running PeriLicense.
5. Click on Set, then click on Apply or Ok.

If %LSHOST% is defined you will need to add the license key to the `plservrc` license file on the license server host. You should have received a paper copy of the PeriStudio license key with the package software. The location of the `plservrc` license file is typically `%MPSHOME%/PERIplic/etc`, however the file may be in another location and you will need to select Start > Find > Files or Folders… to locate it. For more information on the PeriLicense server, installing the PERIplic package, and stopping/starting the PeriLicense server, refer to *Installing MPS Software on the Windows Platform*.

## Backing Up the Sample Files

Along with the PeriStudio program files, two example MMF files were installed into the `$PERISTUDIOHOME` directory. These `sample` MMF files should be backed up for the purpose of safekeeping.

**The following command sequence backs up the `sample` MMF files. This procedure need be done only once, when PeriStudio is initially installed.**

**To back up the sample files:**

1. In a Command Prompt window, enter the following command:
   **`cd %PERISTUDIOHOME%`**.
   This sets the current working directory to the one used to store the PeriStudio files.
2. Create a subdirectory called `backups`:
   **`mkdir backups`**
3. Copy the files to that subdirectory:
   ```
   copy sample.mmi backups
   copy sample.mmd backups
   copy testtone.def1 backups
   ```
4. Make the files *read-only*:
   ```
   cd backups
   attrib +r sample.mmi
   attrib +r sample.mmd
   attrib +r testtone.def1
   ```

To restore the sample files from the backups to the `%PERISTUDIOHOME%` directory, perform the following procedure. This may be done as needed.

**To restore the sample MMF files from the backups:**

1. Close the `sample` file if it is loaded.
2. Exit from PeriStudio.
3. Change to the PeriStudio home directory:
   **`cd %PERISTUDIOHOME%`**
4. Copy the files to the current directory:
   ```
   copy backups\sample.mmi .
   copy backups\sample.mmd .
   ```
5. Restart PeriStudio.
6. Open the `sample.mmi` file again to verify restoration.

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# Release Notes

**This chapter covers:**

1. General Changes
2. MultiMedia File Editor Window
3. Waveform Editor Window
4. Command Line Utilities

## Information About This Software Revision

The following major features have been added or modified for software release 2.20 of PeriStudio. Refer to the *PeriStudio User's Guide* for details.

## General Changes

A significant change to PeriStudio 2.20 is the addition of three-dimensional (3-D) waveform display modes in the Waveform Editor. The item loaded in the Waveform Editor is, by default, displayed in the traditional 2-D format of amplitude (volume) versus time. There are multiple 3-D display options that allow the item to be displayed in amplitude, time, and frequency. These display modes are useful in obtaining information about the frequency content of the item, and for editing portions of the frequency spectrum.

Improvements have been made to the normalization algorithms, time scaling, and DTMF removal. These are transparent changes that are only apparent by improved audible results when processing items. The Post-Normalize option has been added to some audio processing tools. Previous versions of PeriStudio performed post-normalization by default when these tools were used.

## MultiMedia File Editor Window

### Item Attributes Window

The Creation Date and Modify Date fields now display a 4-digit year.

### Import Window

The Show all [AU | WAV | AIFF] Files and Omit file extension options have been added.

### Export Window

- The WAV Format menu is displayed in place of the Encoding options when WAV is selected as the target export format.
- The Select via Pick List option has been added to the item selection menu.

### Batch Tools Menu

- The Normalize by average energy and Normalize by peak energy options have been added to the Global Normalization window.
- The Post-Normalize option has been added to the Global Gain Control window.
- The Post-Normalize option has been added to the Global Graphic Equalizer window.
- The Post-Normalize option and the Band Stop filter have been added to the Global Parametric Equalizer window. The Gain control range has been increased from +3db to +10db.
- A hidden Copy to Pick List menu option has been added to the batch DTMF Detections window.
- The maximum allowable percentage for the Time Scaling option has been increased from 25% to 50%.
- Quick Detection and DFT-based Detection options have been added to the DTMF Detection window.

## Waveform Editor Window

- A hidden display mode menu has been added to the upper waveform display. This menu contains multiple options for 3-D display modes, and for returning to the default 2-D mode.
- The Frequency Distribution window (accessed from 3-D mode) has been added.
- The Silence and Normalize option has been added to the Edit menu.
- The Mark option has been added to the Local Padding Silence window.
- Play-edit shortcut key sequences (hotkeys) have been added to allow playing a preconfigured interval beginning at (<CTRL>+B) or ending at (<CTRL>+E) a marked point in the waveform.

### Parameters Window

The option to record directly from an audio CD in the CD-ROM drive has been added to the General Record Parameters.

### Tools Menu

- The Normalize by average energy and Normalize by peak energy options have been added to the Local Normalization window.
- The Post-Normalize option has been added to the Local Gain Control window.
- The Post-Normalize option has been added to the Local Graphic Equalizer window.
- The Post-Normalize option and the Band Stop filter have been added to the Local Parametric Equalizer window. The Gain control range has been increased from +3db to +10db.
- The maximum allowable percentage for the Time Scaling option has been increased from 25% to 50%.

- DTMF Fix was added to the Tools menu to allow the removal of DTMF tones by either selecting specific DTMF frequency pairs or by scanning the signal of the selected item(s) for frequency patterns that match DTMF tones.

### DTMF Detection Window

Quick Detection and DFT-based Detection options have been added to the DTMF Detection window.

## Command Line Utilities

Refer to the *MPS Command Reference Manual* for a detailed description of the following commands.

**wav2mmf** [**-c 0**|**1**|**2**][**-q**][**-o**][**-e**][**-t**]**-f** <*mmf_filename*> <*list-of-WAV-files*>

- The **-c** option is used to specify encoding format (**0** - mu-law (default), **1** - A-law, **2** - ADPCM).
- The **-q** option is used to enable quiet mode (default: off).
- The **-o** option is used to overwrite the MMF item if the WAV file has the same name (default: off; a new item is created).
- The **-e** option is used to retain the WAV file extension (default: off).
- The **-t** option is used to automatically import both channels of a stereo WAV file (by default, there is a prompt if any stereo WAV files exist).
- The **-f** <*mmf_filename*> option specifies the MMF filename.
- <*list-of-WAV-files*> specifies the list of WAV files.

**cmrexport**[**-q**][**-l**][**-j**][**-n** <*name*>][**-c WAV**|**AU**|**AIFF**][**-f** #][**-p** #]
[**-d** <*path*>][**-b** #][**-e** #] <*mmf_file*>
or
**cmrexport**[**-q**][**-l**][**-j**][**-n** <*name*>][**-c WAV**|**AU**|**AIFF**][**-f** #][**-p** #]
[**-d** <*path*>][**-t** <*tokens-list*>]

- The **-q** option is used to enable quiet mode (default: off).
- The **-l** option means prefixed with its MMF file name (default: off).
- The **-j** option is used to join (merge) all items/tokens into one WAV file (default: off).
- The **-n** <*name*> option; <*name*> is used for the filename of a single item (default: off); prefixed with <*name*> for multiple items (default: off).
- The **-c** option is used to specify the output file format (default: **WAV**) (**WAV**, **AU** or **AIFF**).
- The **-f** option is used to specify the sample frequency in Hz **8000**, **11025**, or **44100** (default: **11025**).
- The **-p** option is used to specify the precision in bits per sample **8** or **16** (default: **16**).
- The **-d** <*path*> option is used to specify the directory that holds the exported file(s) (default: current directory).
- The **-b** option is used to specify the starting EAP # (default: 1).

- The **-e** option is used to specify the ending EAP # (default: last).
- <*mmf_file*> specifies the MMF file to export.
- The **-t** <*tokens-list*> option is used to specify the CMR tokens list (token format: @MMFname:EAP#).

**mmfexport**[**-q**][**-b** *#*][**-e** *#*][**-c** **WAV**|**AU**|**AIFF**][**-f** *#*][**-p** *#*] <*mmf_file*>
or
**mmfexport**[**-q**][**-o** *output-file*][**-i** *item-name*][**-i** *item-name ...*]
[**-c** **WAV**|**AU**|**AIFF**][**-f** *#*][**-p** *#*] <*mmf_file*>

- The **-q** option is used to enable quiet mode (default: off).
- The **-b** option is used to specify the starting EAP # (default: 1).
- The **-e** option is used to specify the ending EAP # (default: last).
- The **-c** option is used to specify the output file format (default: **WAV**) (**WAV**, **AU** or **AIFF**).
- The **-f** option is used to specify the sample frequency in Hz **8000**, **11025**, or **44100** (default: **11025**).
- The **-p** option is used to specify the precision in bits per sample **8** or **16** (default: **16**).
- <*mmf_file*> specifies the MMF file to export.
- The **-o** *output-file* option is used to specify the output filename (default: stdout).
- The **-i** *item-name* option is used to specify the list of item names to export.

**mmfimport** [**-c** **0**|**1**|**2**][**-q**][**-o**][**-e**]**-f** <*mmf_filename*>
<*list-of-AU/WAV/AIFF-files*>

- The **-c** option is used to specify encoding format (**0** - import as mu-law (default), **1** - import as A-law, **2** - import as ADPCM).
- The **-q** option is used to enable quiet mode (default: off).
- The **-o** option is used to overwrite the MMF item if the audio file has the same name (default: off; a new item is created).
- The **-e** option is used to retain the audio file extension (default: off).
- The **-f** <*mmf_filename*> option specifies the MMF filename.
- <*list-of-AU/WAV/AIFF-files*> specifies the list of AU, WAV, or AIFF files.

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